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University of Southern California

December 2012

Citizen Gain

The Economic Benefits of Naturalization for Immigrants and the Economy

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Acknowledgements

We thank the John S. and James L. Knight Foundation for their support of this project as well as the Carnegie Corporation of New York for funding some of the early analytical work on which this effort builds. Special thanks to Michael Fix of the Migration Policy Institute for helpful suggestions on the methods and CASA de Maryland and Catholic Legal Immigration Network, Inc. (CLINIC) for their help identifying financial barriers to naturalization. Last but not least, thanks to Louisa Holmes, Anthony Perez, and Vanessa Carter for their assistance with research and writing. All opinions expressed in this report are those of the authors and do not necessarily reflect the views of our funders or the University of Southern California.

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Contents

Introduction

Citizenship brings many benefits to immigrants, the opportunity to participate more fully in our democracy through the right to vote being primary among them. But beyond the clear civic gain is an often overlooked economic benefit: for a variety of reasons, naturalized immigrants are likely to see a boost in their family incomes that can benefit their children, their communities and the nation as a whole.

Why is the economic importance of naturalization – the process by which immigrants become citizens – so often overlooked? Part of the reason is that much of the heated debate around the economic effects of immigration in the U.S. tends to focus on the unauthorized (or "illegal") population. The economic evidence in this arena points in multiple directions – positive gains at an aggregate level, negative effects on specific sectors of the labor market, mixed impacts on government coffers – but lost in that discussion is the fact that nearly three-fourths of all immigrants are either naturalized citizens or Lawful Permanent Residents (LPRs), those who have legal status and may be eligible to naturalize but have not yet done so (Passel and Cohn 2011, p. 10).

What would happen if those individuals who were eligible to naturalize actually chose to do so? How much would their economic situation improve – and what would be the effects on the overall economy? If such gains are possible, how could policymakers help to encourage even higher rates of naturalization?

In this policy brief, we tackle these questions by combining individual-level data from the Census Bureau's 2010 Public Use Microdata Sample (PUMS) with the most recent data on the number of LPRs eligible to naturalize from the U.S. Office of Immigration Statistics (OIS). We first use the Census data to generate estimates of the "earnings premium" associated with naturalization: even controlling for many of the other characteristics that predict individual wages, we find that earnings can rise by around 8 to 11 percent. We then use the OIS data to simulate a reasonable scenario in which we step up the rate of naturalization in order to reduce the pool of those eligible by half: we find that aggregate earnings increase on the order of $21 billion to $45 billion over ten years, depending on how rapidly we can achieve the naturalization target. The impact on GDP can be even larger once we take into account the secondary effects of higher incomes on spending and demand.

This brief proceeds as follows: We begin with a review of the literature, drawing out both theory and evidence on why naturalization might be associated with a higher earnings trajectory. We then discuss the data we employ and the regression models we develop; as will be seen, we make a number of choices along the way to insure that our estimates are as conservative as possible. We then discuss how the wage trajectory might change over time – benefits would actually accrue over a number of years – and then turn our attention to the possible impacts on aggregate earnings and the overall economy. We conclude with a discussion of the policy implications, particularly how we might make those benefits clear to those who have not yet naturalized and how we could use new financial and other vehicles to induce higher levels of naturalization.

Previous Research on the Economic Benefits of Naturalization

Why Might Naturalization Have Economic Benefits?

On the whole, naturalized immigrants have better economic outcomes than their non-citizen counterparts – but they also tend to have substantially higher levels of what economists refer to as "human capital" (e.g. experience, education, and English language ability) and vary by other key characteristics as well (recency of arrival, country of origin, etc.). For that reason, the focus of the research has been on whether citizenship matters *per se* for the

economic outcome of immigrants, or whether the differences in outcomes are actually explained by differences in other characteristics.[1]

Why might naturalization matter? The two main ways in which obtaining citizenship could lead to better economic outcomes are thoroughly examined in Bratsberg, Ragan, and Nasir (2002). They describe two broad channels: job access and the acquisition of "U.S.-specific human capital" which is incentivized by a decision to remain in the U.S. permanently.

Better access to jobs through attaining citizenship can occur for a variety of reasons, including the fact that many public-sector jobs actually require citizenship – and they tend to pay better (Shierholz 2010). Holding a U.S. passport is also an asset for jobs that require international travel. Beyond the actual job requirements, citizenship can also be a signal to employers that an immigrant has characteristics they are looking for in an employee, such as a basic command of English and possession of "good moral character" – both requirements for naturalization (USCIS 2012) – as well as a commitment to remain in the U.S. (and on the job) for the long term. Finally, some have suggested that citizenship is an assurance of legal status for employers who may be worried about facing sanctions for inadvertently hiring undocumented workers and would thus shy away from non-naturalized immigrants (Mazzolari 2009, 186).

Citizenship is also thought to be associated with the acquisition of U.S.-specific human capital. After all, with planned permanent residency in the U.S. may come a greater incentive to make long-term investments (e.g. obtaining tailored education and/or specific vocational training, starting a U.S.-based business, or social networking with those in the same regional labor market) that might not be made if the plan was to eventually go back home. Unfortunately, because U.S.-specific human capital is often not measurable in survey data – education just shows up as education rather than a set of courses in a very specific U.S.-based career – it can pose challenges for estimating the economic benefits of naturalization. On the other hand, this also means that finding a difference in income for a naturalized immigrant, once you have controlled for education level, regional labor market, and other factors, could be a signal of this sort of citizenship-induced investment in U.S.-specific human capital.

Previous Estimates of the Economic Benefits of Naturalization

There are two broad approaches that have been employed in testing whether citizenship matters for immigrant economic outcomes. Both use regression analysis – a statistical technique that attempts to separate the impact of citizenship on income from the impacts of other individual characteristics. Where they differ is in their periodicity: the first approach involves using cross-sectional data (i.e. data for multiple individuals at one point in time) and then modeling income as a function of citizenship and a set of "control variables" thought to affect individual income levels while the second (and far less common) approach tries to track the same individuals over time to see what difference naturalization may have made in their economic trajectory.

The first study of immigrants in the U.S. using the cross-sectional approach was by Barry Chiswick and used 1970 census data (Chiswick 1978). He found that citizenship had a positive effect on earnings of adult foreign-born white men controlling for many important factors, but the effect lost significance once controlling for the length of residence in the U.S. In later analysis using 1980 census data on adult foreign-born men of all races, however, he reported a significant effect of about 5 percent, dropping to 4 percent once English language proficiency was controlled for (Chiswick and Miller 1992).

Since that early work, a body of international research has emerged that finds positive and significant relationships of citizenship with regard to earnings and employment (see, for example, DeVoretz and Pivnenko 2004; Bevelander and Pendakur 2011). However, it was not until very recently that another U.S.-based study relying entirely on the

[1] Sumption and Flamm (2012) also provide a review of the literature but provide less econometric detail on earlier studies and do not conduct their own regression analysis. That publication, however, offers a broader view than we do of the policy context and related issues and is a very useful companion read.

cross-sectional approach was released. That report, by Heidi Shierholz of Economic Policy Institute, found that among immigrant families, citizenship was associated with family income that was 15 percent higher and poverty rates that were 3 percentage points lower (Shierholz 2010).

While the cross-sectional analysis is useful, there are several limits to this approach. The first is simply that the control variables must be *measurable* and available in the cross-sectional data itself. If there are important unobservable characteristics for determining economic outcomes that cannot be included in the regression and they happen to be related to citizenship, then the estimated impact of citizenship on economic outcomes are "polluted" by their influence. For example, suppose that the choice of citizenship is associated with a "go-getter" attitude – then the finding of a positive economic effect for citizenship may really reflect how that sense of internal drive (and not citizenship) intersects with labor market outcomes.

A second key issue in the cross-sectional approach is legal status: because authorization to work is generally not available in public survey data, it cannot be entered as a control variable. As a result, any economic gain to citizenship one finds *could* simply be a difference between those who are lawfully in the country (and hence can become citizens) and those who are not; as will be seen, we try to deal with this below. A third potential issue is reverse-causality: as pointed out in Sumption and Flamm (2012), the significant financial costs that are incurred during the naturalization process likely mean that the decision to naturalize partly depends on income levels, yet the model assumes that causation runs in the other direction.

Given these potential issues with the cross-sectional approach, a second approach to gauging the impact of naturalization involves estimating wage gains using longitudinal data (for the same group of people over time). With a longitudinal approach, one can theoretically account for individual characteristics (like "drive") that are not captured in survey questions but are likely to impact both the decision to naturalize and income (what are called in the literature "individual fixed effects"). Such an approach also puts aside the issue of the unauthorized: in order to become a citizen, one needs to be authorized first so any gain from citizenship is just that (since to become a citizen, one must have already obtained legal status). Finally, a longitudinal approach also helps sort out the causality issues because one is tracking the income gain over time for the same person – and the way in which their initial income factored into the naturalization decision is already captured in the starting point of that trajectory.

Unfortunately, such longitudinal studies are a challenge data-wise and hence are few and far between. The only study on immigrants in the U.S. using this method (that we are aware of) is Bratsberg, Ragan, and Nasir (2002). Using data on 332 young male immigrants followed from 1979 through 1991, they found (among other things) that naturalization was associated with a wage gain of around 5.6 percent in their sample; they note that this is not a one shot gain and use an alternative set of specifications to suggest that naturalization leads to a small initial increase followed by wage growth over time that is faster than that of immigrants who did not naturalize but were otherwise similar.[2] The wage growth factors they find would seem to suggest ultimate gains from naturalization could be larger than the 5.6 percent – after all, they are tracking young men for only 12 years and so the average total increases they

[2] In what is probably their best specified model (Table 7, column 2), one that controls for job shifts over time to the public sector or white-collar employment and, like us, considers only immigrants, they find a statistically insignificant initial bump of 1.3 percent, followed by an additional 1.8 percent increase in wages for every year after naturalization, with that second effect being statistically significant (Bratsberg, Ragan, and Nasir 2002, 588). This specification is close to our own model with occupational and industry controls. A specification that appears most comparable to ours without such controls comes earlier in the paper, and suggests an initial gain of around two percent (which is also not statistically significant) and subsequent (and statistically significant) annual gains of less than 2.5 percent (see Table 5, column 4). A subsequent study that carried out a similar analysis, but on immigrants in Germany, found more modest gains – an initial wage boost of less than one percent and then faster wage growth of only 0.29 percent per year (Steinhardt 2008). While the two studies are not really comparable given the many economic and social differences between the U.S. and Germany, one reason for the higher wage growth in the Bratsberg et al. effort may be, as noted in the text, that the empirical focus is on young males. As we see below, we find that there are declining returns to naturalization after a 12-17 year period and returns are higher for females. The Bratsberg et al. sample includes only males and is time constrained such that no one is allowed to experience the declining returns to naturalization, whereas the Steinhardt study (and ours) considers females and older adults as well.

estimate are a lower bound for a sample that would include females and older adults who might have more time since their date of naturalization.

One real strength of the Bratsberg, et al. (2002) study is that the authors directly compare the cross-sectional approach and the longitudinal approach *on the same data*. They do this by conducting a cross-sectional analysis of Census data, Current Population Survey data, and the dataset they use in their longitudinal work, the National Longitudinal Survey of Youth (NLSY). The results for all three cross-sectional analyses – all limited to young adult males – suggest that naturalization is associated with a wage increase of between 5 and 6 percent (with all controls in the regression analysis), a figure that is almost exactly what they find when they subject the NLSY data to the "over-time" analysis described above. Given the consistency of these results, we have more confidence that a cross-sectional approach will yield reliable results – and also anticipate that a cross-sectional estimate that includes those who have had more time since naturalization might find a larger overall effect.

In any case, the available research suggests that naturalization has some positive effect on income – even controlling for many important factors that also determine income levels. The purpose of our analysis below then is not to answer the question of whether there are economic benefits associated with attaining citizenship, but rather to provide a current estimate of the economic benefits that might accrue to the newly naturalized and what they could mean for the U.S. economy.

Estimating the Returns to Naturalization

Describing the Data and Basic Methods

To derive a current estimate of economic benefits of naturalization, we focus on the annual earnings of individual immigrant workers in the 2010 American Community Survey (ACS).[3] We consider individual annual earnings rather than other measures of income (e.g. wages, family income) for several reasons. First, to the extent that naturalization increases one's employability, this would include gaining more hours of work; in this sense, a strict focus on hourly wages would tend to understate the total income benefits of naturalization and overall earnings is thus the better measure.[4] Second, we consider *individual* earnings because we believe this is the more appropriate unit of analysis. At least one recent study has estimated the return to family income that is associated with naturalization of the head of the family. This approach essentially compares the family incomes of naturalized-immigrant headed families to those headed by non-citizen immigrants (Shierholz 2010). The underlying assumption here is that the naturalization of one person (the family head) can impact the income of other family members, perhaps because new citizens, who have themselves improved their job prospects, are able to help their spouses or other family members find better jobs. While this may be true, there is no way to really test this network effect and the more conservative approach (and one more consistent with the bulk of the existing empirical research) would be to focus on the link between citizenship attainment and individual earnings.

Using individual earnings as the dependent variable, we conduct a multivariate regression analysis using the cross-sectional approach described above. The basic approach in such a regression is to include as many factors as possible that are important in predicting income – and to then introduce a "dummy variable" that takes a value of one if the individual is a naturalized citizen and interpret the resulting coefficient on that dummy variable as

[3] Specifically, the 2010 ACS data we use is from IPUMS (Ruggles et al. 2010).

[4] We considered including unearned income as well (e.g. rental income, capital gains, public subsidies), but there is either less theoretical basis for gains in these income sources through naturalization, or, in the cases of public subsidies, the increase is a transfer rather than a result of real or perceived enhancement in human capital.

the percentage gain from naturalization.[5] While the longitudinal approach might better control for individual characteristics, as noted above, results obtained using both approaches with the same data point in the same direction and even roughly to the same size effect (Bratsberg, Ragan, and Nasir 2002). Moreover, the advantage of cross-sectional data is sample size: while sample sizes tend to be relatively small in longitudinal datasets, the 2010 ACS covers about 1 percent of the U.S. population, including a raw count in that year of nearly 350,000 immigrants.

We focus on the immigrants in the sample because including non-immigrants in our regressions could create problems if there were, for example, different returns to education for the U.S.-born (which seems likely; after all, part of our argument for gains is based on the notion of U.S.-specific human capital investments). We further restrict our attention to immigrants ages 18 and older, not living in group quarters, who had worked during the year prior to the survey, with earned income between $400 and $292,000 in 2010.[6] We also omitted all respondents who arrived in the U.S. since 2005 as they are not likely to be eligible to naturalize.[7] The resulting sample size is just over 183,000, sizable enough to test multiple factors and achieve statistically significant results.

In our regression model, we control for a set of basic characteristics that are common to any wage or earnings equation: personal and household characteristics, including gender, race/ethnicity, marital status, and the presence of children; so-called "human capital" characteristics, including educational attainment, and potential work experience;[8] industry and occupation controls (for a set of 15 industries and 24 occupations); and geographic characteristics, including a set of state dummies to account for state-level differences in earned income. In addition to these, we also control for other measures that are more immigrant-specific and can be found in other studies modeling the economic benefits of naturalization. These include English speaking ability; recency of arrival in the U.S. (split into four periods and represented as dummy variables); and country of origin (a set of 20 dummy variables for the top 20 countries of origin for immigrants in the 2010 ACS). The latter country-of-origin controls are particularly important given that naturalization rates, incomes, and many of the key human capital measures noted above vary systematically by country of origin.

Finally, we include two measures that seem appropriate but were not found in our review of the literature: the immigrant/citizenship status of one's spouse and a measure of "area unemployment." The first measure seemed useful in helping to reduce bias. Given the increased propensity to naturalize for immigrants married to U.S. citizens (Woodrow-Lafield et al. 2004), if the same immigrants also tend to have higher income, holding other factors constant, then the omission of this information from the model would tend to overstate the returns to naturalization. To examine differences by spousal immigrant status (i.e. U.S.-born or foreign-born citizen), we included two separate dummy variables: one for marriage to a naturalized citizen and one for marriage to a U.S.-born citizen. The second new measure we introduced was a measure of local (that is, metro area) unemployment. This was based on the notion that particularly "loose" labor markets (i.e. those with high unemployment rates) generally have lower earnings and so controls for that effect are relevant, particularly if naturalized immigrants are more attracted to areas with low unemployment (which would then overstate the "citizenship effect").[9]

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[5] The percentage calculation requires specifying the dependent as the natural log of earnings, something that is standard in labor market literature.

[6] The income range was determined by excluding the top and bottom 1 percent of the sample – an attempt to omit so called "outliers" – that is, observations that could skew the regression line by their extreme values. This is a standard approach, particularly with Census data where income is self-reported.

[7] Aside from those married to U.S. citizens and other special circumstances, one needs to reside in the U.S. for five continuous years to be eligible to naturalize.

[8] As is standard in such regressions, we also include the squared value of work experience; this reflects the idea that, after some period of time, there are declining returns to additional work experience and the square allows the relationship between work experience and income to take the shape of an inverted "U".

[9] We are grateful to Michael Fix of Migration Policy Institute for suggesting area unemployment rates as a relevant measure. It is calculated as the unemployment rate for the metropolitan area in which an immigrant in our sample resides, or for persons living outside of a metro area, the rate for the non-metro portion of the state in which they reside, using the same 2010 ACS microdata that is used for calculating all other measures.

Table 1: Size of Immigrant Population by Citizenship, Residency Status

Country of Origin	Naturalized	%	Non-Citizen	%	Legal Permanent Residents (LPRs)	%	LPRs Eligible to Naturalize	%
Mexico	2,704	23%	9,043	77%	3,320	28%	2,650	23%
Philippines	1,155	65%	612	35%	590	33%	330	19%
Dominican Republic	417	47%	463	53%	470	53%	300	34%
Cuba	614	55%	498	45%	410	37%	280	25%
China	1,233	57%	935	43%	590	27%	260	12%
El Salvador	334	28%	873	72%	330	27%	260	22%
Canada	355	45%	430	55%	320	41%	260	33%
India	1,134	48%	1,243	52%	520	22%	240	10%
United Kingdom	332	49%	345	51%	290	43%	230	34%
Vietnam	930	75%	314	25%	330	27%	210	17%
Other, Foreign-born	8,250	52%	7,705	48%	5,900	37%	3,510	22%
Total	17,458	44%	22,461	56%	13,070	33%	8,530	21%

Notes: Universe includes total population. Data on LPRs are from Rytina (2012), and represent estimates for January 1, 2011. Numbers are in thousands. Percentages are figured as shares of all immigrants from each country of origin.

Simple Differences Analysis: Size and Economic Characteristics of the Naturalized and Non-Citizen Immigrant Population

Before turning to our regression results, we look into some of the "raw" or unadjusted differences in the economic characteristics of naturalized and non-citizen immigrants, as compared to the U.S-born population. Of course, these simple differences overstate the effect of citizenship but they are useful to better understand the many ways in which the other characteristics of naturalized immigrants differ from those of non-citizens – and thus what we are seeking to control for in the regression exercise.

We begin, however, by looking at the current size and composition of immigrants by citizenship and permanent residency status, as well as the size of the eligible-to-naturalize population. This information is provided in Table 1, where data for the top 10 countries of origin for the eligible-to-naturalize population are broken out as well. In all, there are nearly 40 million immigrants living in the U.S – about 17.5 million of which are naturalized citizens, leaving some 22.5 million non-citizens. Among the non-citizen immigrants, 13 million are LPRs, and about two-thirds of those (roughly 8.5 million) are estimated to be eligible to naturalize (that is, they have resided in the U.S. for a sufficiently long period of time to be eligible to apply). Most of the remaining 4.5 million, while not included in our calculations of aggregate economic benefits below, will be eligible to naturalize by the end of 2015.

Mexico is by far the top country of origin for the eligible-to-naturalize, followed by the Philippines as a distant second; the next eight top countries of origin have following similar numbers of eligible-to-naturalize LPRs. As can be seen in the table, Asian immigrants in these top 10 tend to have the highest naturalization rates, and Latin American immigrants the lowest. Part of this surely has to do with higher rates of unauthorized status among immigrants from Latin America: when comparing the number of LPRs from each country to the number of non-citizens, we find that only about a third of non-citizens from Mexico and El Salvador have LPR status (with the rest presumed to be largely unauthorized) while the vast majority of non-citizens from the Philippines and Vietnam hold LPR status.[10] The trends for China and India are different, with roughly half of non-citizens holding LPR status. In the case of these two sending countries, the remainder (non-citizens without LPR status) is likely to include a large number of student-and work-visa holders, along with the unauthorized.

[10] Note that because data on non-citizens and LPRs were estimated separately (and for slightly different time periods), they should not be expected to be entirely consistent. For example, note that for the number of non-citizens from Vietnam is smaller than the number of eligible-to-naturalize from that country. This, of course, is not possible and should be interpreted as indicating a very high rate of LPR status among non-citizens from Vietnam.

Table 2: Socioeconomic Characteristics of U.S. Workers by Nativity and Citizenship

	U.S.-born	Naturalized Immigrants	Non-citizen Immigrants
Earnings, Employment and Assets			
Average annual earnings	$39,065	$43,579	$28,797
Average daily earnings	$107	$119	$79
Full-time workers	62%	69%	62%
Below poverty	8%	6%	16%
Homeowner	71%	72%	45%
Has health insurance	84%	82%	49%
Years in the USA and English-speaking Ability			
Years in the U.S.	–	25	16
Speaks English not at all	0%	1%	12%
Speaks English not well	0%	11%	27%
Speaks English well	1%	23%	23%
Speaks English very well	7%	45%	27%
Speaks English only	92%	19%	11%
Educational Attainment			
Less than High School	7%	15%	40%
High School Graduate	27%	21%	25%
Some College	36%	27%	16%
Bachelors Degree	20%	22%	10%
Master's degree	8%	9%	5%
Professional degree	2%	3%	1%
Doctoral Degree	1%	2%	2%

Table 2 turns to the differences in economic characteristics between naturalized and non-citizen immigrants. We see a large difference in average annual earnings, with naturalized immigrants actually earning more (on average) than U.S. natives.[11] The same goes for rates of full-time employment (which feeds into earnings),with 69 percent of naturalized immigrants working full-time compared to 62 percent of non-citizens and U.S. natives.[12] Even more dramatic differences between the naturalized and non-citizens are seen when it comes to poverty, home ownership, and health insurance coverage. In the remainder of the table, we see that, compared to non-citizens, naturalized immigrants tend to have resided in the U.S. longer, have much better English-speaking abilities, and report higher education levels. Interestingly, the share with a doctorate is about the same for the naturalized and non-citizens, reflecting the presence of high-skill immigrants who may have come to the U.S. on a student or work visa and may or may not hold LPR status.

[11] All reported figures in Table 2 through Table 4 are calculated for the regression sample, but expanded to include U.S. natives.

[12] As is standard in the literature, full-time work is defined as having worked at least 50 weeks during the year prior to the survey with a typical work week of at least 35 hours.

Table 3: Industries and Occupations of U.S. Workers by Nativity and Citizenship

	U.S.-born	Naturalized Immigrants	Non-citizen Immigrants
Employment by Industry			
Agriculture, Forestry, Fishing & Mining	2%	1%	4%
Construction	6%	5%	14%
Manufacturing	10%	12%	12%
Wholesale Trade	3%	3%	3%
Retail Trade	12%	10%	9%
Transportation, Warehouse & Utilities	5%	6%	4%
Information	2%	2%	1%
Finance, Insurance & Real Estate	7%	7%	3%
Professional, Management and Administrative Services	10%	11%	13%
Education, Health and Social Services	24%	24%	13%
Entertainment, Accomodation & Food Services	9%	9%	15%
Other Services	5%	6%	7%
Public Administration	6%	4%	1%
Armed Forces	1%	0%	0%
Employment by Occupation			
Management, Business & Financial	14%	14%	7%
Computer, Engineering & Science	5%	7%	4%
Community, Social Service and Legal	3%	2%	1%
Education, Training and Library	7%	5%	3%
Arts, Design, Entertainment, Sports & Media	2%	2%	1%
Healthcare Practitioners & Technical	5%	7%	2%
Healthcare Support	2%	4%	2%
Protective Service	2%	1%	1%
Food Preparation & Serving	5%	5%	10%
Buildings, Grounds Cleaning & Maintenance	3%	5%	12%
Personal Care & Service	3%	5%	4%
Sales and Related	11%	10%	8%
Office and Administrative Support	15%	12%	7%
Farming, Fishing and Forestry	1%	1%	4%
Construction & Extraction	5%	4%	13%
Installation, Maintenance & Repair	3%	3%	3%
Production	5%	8%	10%
Transportation & Material Moving	6%	6%	8%

Table 3 shows that there are fairly substantial differences in the industries and occupations in which naturalized immigrants are employed compared to non-citizens, with naturalized citizens showing much more similarity to the U.S.-born in terms of the jobs in which they work. For example, while non-citizens are far more concentrated in agriculture, construction, and accommodations and food services, naturalized immigrants are more likely to work in public administration, finance, insurance and real estate, education, health and social services, transportation and warehousing, and information. While these differences in sectors of employment reflect a mix of authorized versus unauthorized status and the generally bifurcated distribution of immigrants by skill level, some of the differences – most clearly in the case of public administration – reflect the potential for increased job access that citizenship can bring. Similar trends are seen when considering occupations, with non-citizens more focused in farming, construction, food preparation, and cleaning/maintenance jobs and naturalized citizens more likely to be found in healthcare, community and social services, protective service, management, education, office and administrative support, and computer, engineering and science occupations.

Table 4: Average Annual Earnings for U.S. Workers by Nativity, Citizenship, and Selected Characteristics

	U.S.-born	Naturalized Immigrants	Non-citizen Immigrants	% Diff.
By Country of Origin				
United States	$39,065	--	--	--
Mexico	--	$31,106	$20,994	48%
Philippines	--	$48,982	$36,612	34%
Dominican Republic	--	$31,334	$22,607	39%
Canada	--	$56,159	$53,054	6%
Cuba	--	$43,136	$23,234	86%
El Salvador	--	$32,287	$23,334	38%
United Kingdom	--	$58,420	$55,122	6%
China	--	$54,928	$44,252	24%
India	--	$58,167	$62,960	-8%
Vietnam	--	$39,826	$25,095	59%
Other, Foreign-born	--	$44,135	$32,790	35%
By Educational Attainment				
Less than HS	$20,937	$26,044	$19,885	31%
HS Diploma (or GED)	$28,890	$30,547	$23,860	28%
Some College	$33,360	$36,063	$28,083	28%
Bachelor's Degree	$52,514	$53,888	$46,263	16%
Master's Degree	$63,007	$71,620	$66,386	8%
Professional Degree	$89,846	$91,890	$70,600	30%
Doctoral Degree	$80,841	$93,150	$75,347	24%
By English Speaking Ability				
None	$20,462	$21,320	$17,476	22%
Not well	$29,507	$25,923	$20,690	25%
Well	$29,203	$36,557	$26,923	36%
Very well	$34,152	$49,370	$38,250	29%
Only	$39,564	$49,596	$41,562	19%

Note: The "% Diff." column reports the percentage differences between earnings of naturalized and non-citizen immigrants (naturalized immigrants minus non-citizen immigrants).

Finally, Table 4 looks at differences in earnings between naturalized and non-citizen immigrants who have certain characteristics in common – those that have been shown in past research and in the tables presented above to be most useful in distinguishing naturalized immigrants from non-citizen immigrants *and* higher income earners from those earning less. The table shows that while there are in fact large overall differences in earnings between immigrants from different countries and differing levels of educational attainment and English speaking abilities, it is virtually always the case that if any of these characteristics is held constant, naturalized immigrants earn more than non-citizens. For example, while immigrants from China tend to have much higher earnings than immigrants from El Salvador overall, naturalized immigrants from both countries earn substantially more than their non-citizen counterparts. Look also at education: naturalized immigrants with a similar level of education always earn more and this persists in the upper strands of educational status, where it is unlikely that the difference is driven by, say, status as an undocumented resident. And while speaking English is an income enhancer for all immigrants, it is especially so for citizen immigrants.

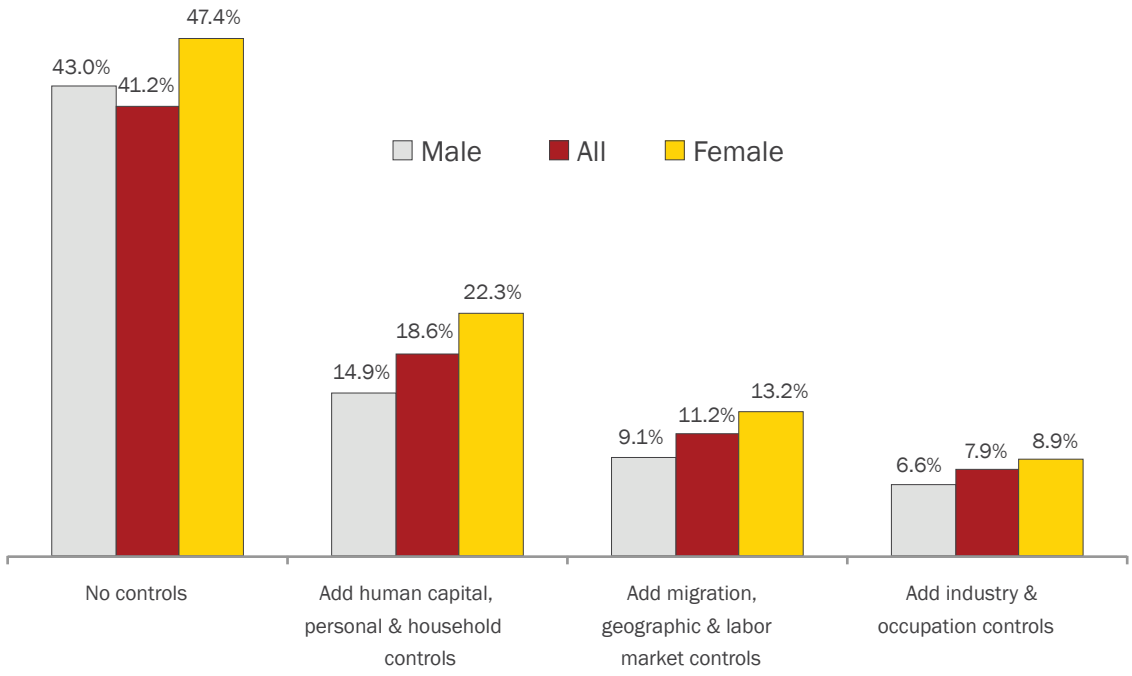
While these comparisons do suggest that none of these important characteristics single-handedly "explain away" the earnings differential between naturalized and non-citizen immigrants, they do not provide compelling evidence that there is an independent relationship between citizenship and earnings. Indeed the differences in earnings shown in the final column of Table 4 still surely overstate the returns to citizenship, as there are likely important differences in human capital and other characteristics between, say, immigrants from Mexico who have attained citizenship and those who have not. To isolate the difference in earnings that is related to naturalization alone, all measureable factors that are thought to affect earnings as well as the decision to naturalize must be considered together in the context of a multivariate regression – a task we take up in the next section of this report.

Adjusted Differences Analysis: Regression Results

Given the above examination of the many ways in which naturalized citizens differ from their non-citizen counterparts, what happens to the difference in earnings when we try to take all of these differences into account?

The appendix to this policy brief offers the full regression results for the interested technical reader – if you are like us, you are eagerly turning there now–but if you are, shall we say, more normal, you probably just want to know the highlights. These include the fact that all of the control variables had the expected signs: more valued human capital characteristics, such as higher education levels, work experience, and English speaking ability are associated with higher earnings, being female or non-white is associated with lower earnings (however, for non-Hispanic Asians, the effect is only significant once industry and occupation controls are included), being married and having children is associated with higher earnings as compared to being unmarried (and, if married, having a U.S.-born or naturalized-immigrant spouse is associated with higher earnings than a non-citizen spouse), and living in a region with higher unemployment is, as expected, associated with lower earnings.

Figure 1: Earned Income Returns to Immigrant Naturalization



What this basically means is that the regression is well-behaved and so we can focus on the specific variable of interest: citizenship. The results are shown in Figure 1. First, the unadjusted difference between average annual earnings of naturalized and non-citizen immigrants in our sample is large (around 41 percent), largely confirming the big gaps that were shown in the simple differences shown in the preceding tables.[13] However, once we begin to control for differences in characteristics that are important in determining a worker's earnings, this difference drops dramatically (and appropriately), first down to 19 percent after adjusting for human capital, personal and household characteristics; 11 percent after adding in migration, geographic and labor market controls; and, finally, 8 percent after accounting for differences in the industries and occupations in which people work. Consistent with previous research, the returns to naturalization for females are slightly larger – 9 percent as compared to 7 percent for males in the model with the full set of controls – and the figure of 8 percent is well within the range of other U.S. estimates.

While there is a clear and concrete case for inclusion of most of these control variables, for the last category – industry and occupation – the case is less clear. After all, some authors stress that one of the paths to higher earnings through naturalization is increased job mobility (Bratsberg, Ragan, and Nasir 2002). To the extent that job mobility involves a change in one's industry or occupation of employment, the model does not allow the citizenship dummy variable to capture the positive effect such a change could have on one's earnings. However, job mobility is not the only path to higher earnings, and obviously there are many immigrants who do not change industries or occupations after naturalizing (even if they change jobs). With these considerations in mind, we suggest that the "true" impact on earnings from gaining citizenship falls somewhere between the 8 and 11 percent figure, and treat the two results as lower- and upper-bound estimates, respectively, for the remainder of our analysis.

Given the fairly dramatic differences in characteristics detailed above, all of which are important determinants of earnings, it is not surprising that they account for the majority of the difference in earnings between naturalized and non-citizen immigrants. However, the fact that a statistically significant difference persists even after taking many other important factors into account, suggests that policies designed to increase naturalization could yield important economic benefits for both immigrants themselves and for the U.S. economy as a whole.

What About the Unauthorized? Results from California

An important limitation to the cross-sectional regression analysis presented above is that we are only able to control for characteristics that are measured in public survey data. One important control that we are unable to include in our analysis – and one we are obliged to pay particular attention to given its centrality to the immigration debate – is legal status. After all, when an immigrant naturalizes, they move from holding LPR status to citizenship – not from unauthorized status to citizenship (which, of course, is not possible as LPR status is a precondition to citizenship). Given that unauthorized immigrants tend to be concentrated in low-wage jobs and might be subject to significant labor exploitation, wouldn't their inclusion among the non-citizens in our sample tend to overstate our estimate of the returns to naturalization?

On the face of it, the answer to this question would seem to be a clear "yes." However, there are reasons why this might not be the case. As noted above, there are many characteristics that we are unable to control for, but they are only a problem for our estimate of the returns to citizenship if: (1) they are related to both the decision to naturalize and income, and (2) their effect is not largely captured by other variables already included in the model.

[13] The observant reader may notice that this is less than the 51 percent difference in earnings indicated in Table 1. The reason is that we are looking at the difference in the logged values of annual earnings. This is standard in the literature because unlike raw values, logged differences are not affected by whether you are asking about the percent one value is above or below another – and that better allows you to track the effects of specific variables because the reported coefficient is then the percent difference either up or down.

For example, we might assume that people who are really good communicators are both more likely to naturalize and earn more than people who are less articulate. However, given that higher levels of educational attainment tend to be positively correlated with communication skills, and that we control for education in our regression model, the fact that we are unable to control for communication skills directly is not likely to skew our results. Likewise, given that unauthorized status has been shown to be closely associated with a set of variables that are included as controls in our model (e.g. country of origin, educational attainment, year of arrival in the U.S., English speaking ability, industry, occupation), the inability to directly control for the unauthorized may not have a noticeable effect on our results.

Of course, it would be even better if we knew who was unauthorized among the non-citizen immigrants in our regression sample; we could then exclude them from the regression, leaving the citizenship dummy to capture just the difference between naturalized immigrants and authorized non-citizens. While this is information that we do not have for our entire U.S. regression sample, we do have such estimates for a subset of our sample: Latinos in California. These estimates are based on work done by Enrico Marcelli of San Diego State University in which he conducted a set of surveys of Mexican immigrant adults in Los Angeles County, collecting information on both legal status and many other socio-demographic characteristics that are common in public survey data.[14] Marcelli then uses the data to model authorization as a function of variables that are also publicly available, including age, gender, education, and recency of arrival in the U.S. We borrow and apply the regression coefficients from this model to the individual answers in the Census to assign a probability of authorized status; while this model is likely not suitable to predict who is unauthorized among all non-citizen immigrants in our U.S. regression sample, our experience is that it is reasonably valid when extended geographically to all of California, and demographically to include all Latino immigrant adults.[15]

With that done, we then ran the same earnings models using only the California portion of our regression sample. We first ran the same models reported on in Figure 1 for the entire California regression sample, and because our unauthorized estimates are only for Latinos, we then replicated the model, restricting the sample to Latinos only (to note any differences in the returns to naturalization for that immigrant group), and finally ran it again restricting to Latinos but excluding those individuals that were estimated to be unauthorized. These results are reported in Table 5.[16]

For comparative purposes, in the first column we reiterate the results for all immigrants from the U.S. regression sample, as reported in Figure 1. When comparing to the second column, which reports the results for the California sample only, we find that the returns to naturalization are somewhat higher in California than in the U.S. overall, with a raw (unadjusted) difference in earnings of about 50 percent, falling down to about 11 percent once all of the

Table 5: Earned Income Returns to Immigrant Naturalization, Restricted Samples

	Full Regression Sample, all U.S.	Full Regression Sample, CA Only	Latinos Only	Latinos Only, Excluding the Unauthorized
No controls	0.412	0.499	0.415	0.348
Add human capital, personal & household controls	0.186	0.220	0.281	0.253
Add migration, geographic & labor market controls	0.112	0.139	0.196	0.190
Add industry & occupation controls	0.079	0.109	0.153	0.148

[14] For a fairly recent description of the approach, see Marcelli and Lowell (2005).

[15] For example, we have used it as such in past research, and found it to produce an estimate of the total number of unauthorized Latino adults in California that was very close to other estimates that were based on different data and different methodologies, particularly the "residual" approach of estimating the undocumented population (see, for example, Pastor et al. (2010).

[16] To conserve space, the detailed results for these regression models are not included in this report but are available upon request.

controls are entered into the model. Interestingly, while the raw returns to naturalization for Latinos in California (the third column) are somewhat lower than those for all California immigrants (41 percent as compared to 50 percent), they are higher under the fully specified model (15 percent as compared to 11 percent). This is likely due to differences in human capital and other characteristics between Latino and other immigrants being captured by the various control variables, as they are entered, leaving the citizenship variable more "pure" – that is, coming closer to capturing the independent relationship between citizenship and earnings, and not simply picking up the (positive) earnings impact associated with being a non-Latino immigrant – a group that tends to have higher citizenship rates than Latino immigrants (as evidenced in Table 1).

In the fourth and final column, unauthorized Latinos are dropped from the regression sample, effectively leaving the citizenship variable to pick up differences in earnings between naturalized Latino immigrants and their non-citizen (but authorized) counterparts. There we find results that are not dramatically different from the model that included the unauthorized (third column), and the difference between the two gets smaller as more controls are introduced into the model. The unadjusted difference is about 35 percent when the unauthorized are excluded from the sample as compared to 42 percent when they are included, but these figures both round to around 15 percent under the full specification.

These results may also help to explain a conflict between results we found in a cross-sectional examination of the returns to authorization (Pastor et al. 2010) and the results obtained in a very different look at the gains to LPR status using a smaller but longitudinal sample (Hill, Lofstrom, and Hayes 2010). In that work, we estimated a nearly 10 percent gain from authorization while Hill, Lofstrom and Hayes found negligible gains, with one of their rationales for this surprising result being that in current economic conditions, there was very little difference in the labor market for authorized and unauthorized immigrants.

We think there may be some issues with sample bias in the work by Hill, Lofstrom, and Hayes but the results above also suggest that it is possible we were both right. After all, they were looking at a very short time period after gaining LPR status, and if the real gain comes from citizenship, it is not likely that they would have found a positive effect since it takes at least five years to become naturalized. At the same time, the cross-section distinction we found may have been partly due to citizenship itself, something that is suggested by the small difference in the citizenship effect when we include the unauthorized. We note further that the wage gains some researchers suggested came from the 1986 Immigration Reform and Control Act – the so-called Reagan "amnesty" – accrued years later and could also partly reflect citizenship (as well as a different economy, time period as well as improved job mobility).[17]

The bottom line of this analysis: while the inclusion of the unauthorized in the non-naturalized immigrant base seems like it should distort a comparison of earnings between naturalized immigrants and non-citizen (but authorized) immigrants, it does not seem to do so in a state and population for which we have better information on authorization. Given that the comprehensive set of human capital and other controls we use to predict earnings are also predictive of legal status, this result should actually not come as much of a surprise.

How Long Does It Take for Benefits to Materialize?

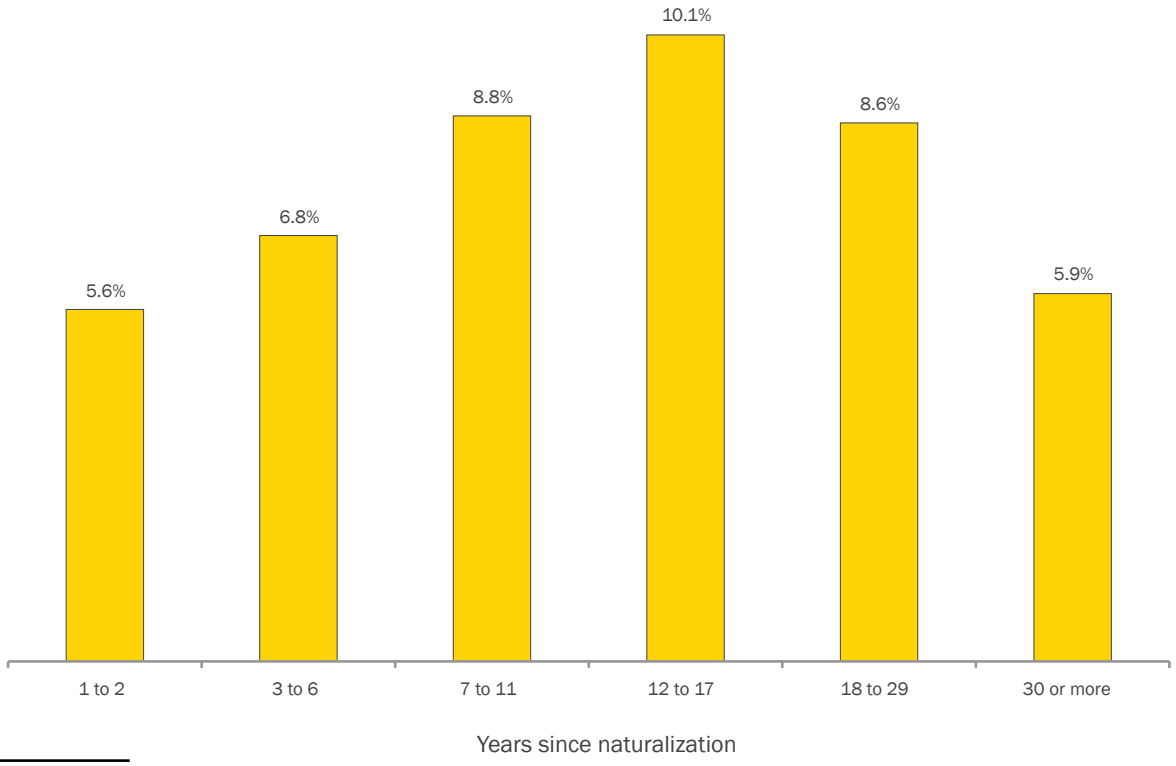
If naturalization does indeed have a positive effect on earnings, how long do those increased earnings take to materialize? While this question was addressed in the longitudinal analysis of Bratsberg et al. (2002), it has not been possible to explore with the use of cross-sectional Census data until very recently. In 2008 the ACS added a question asking naturalized immigrants the year in which they naturalized. Using information gleaned from this question in our 2010 ACS microdata, we ran the same regression model presented above, but rather than entering the citizenship dummy as a single variable, we split it into a set of dummy variables capturing those who naturalized during different periods of time prior to the survey.

[17] See the review of the literature in (Hinojosa-Ojeda 2010).

Recall that the longitudinal analysis in Bratsberg et al. (2002) suggested that there was an initial gain followed by faster wage growth over time. Thus, we set the first period at less than two years since naturalization – using two years instead of one to increase the sample size and hence statistical reliability – in order to capture the more immediate effect of naturalization on earnings.[18] This initial period included about 7 percent of all the naturalized and subsequent periods were determined such that each band of years since naturalization included about 20 percent of all naturalized immigrants in the regression sample, with the final range – 30 or more years since naturalization – capturing about 12 percent of the sample.

The results of this regression are summarized in Figure 2.[19] There, we find a boost in earnings of 5.6 percent for those who naturalized one or two years ago, a figure that is fairly close to that found using a comparable specification from Bratsberg et al. (2002).[20] The effect increases with experience since naturalization, reaching about 10 percent for immigrants who naturalized 12 to 17 years prior to the time of the survey. The relative slowdown in increased returns to earnings with each year since naturalization differs from Bratsberg et al. (2002) but recall that they are focused on younger workers and a relatively short time since naturalization. We would note that the growth per year we find over the long haul is actually quite close to that obtained in Steinhardt (2008). In any case, our results do support the notion, however, of a relatively immediate boost in earnings associated with naturalization, with additional gains over subsequent years.

Figure 2: Earned Income Returns to Immigrant Naturalization by Recency of Naturalization (lower bound estimates)



[18] The number of years since naturalization referred to here is figured such that the past two years includes all persons in the 2010 ACS who reported naturalizing in 2009 or 2010 (about 7 percent of all naturalized immigrants in our regression sample).

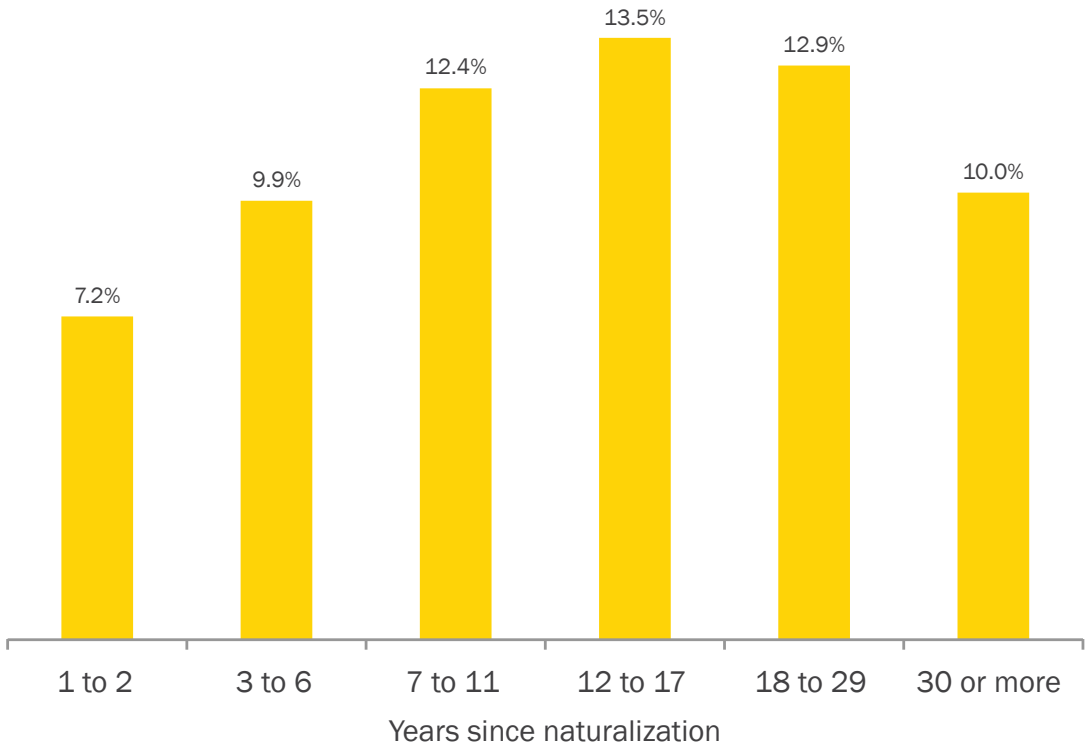
[19] Detailed regression results are not included here as there were no important changes to any of the other regression coefficients, but are available upon request.

[20] Table 7, column 24 of that paper has the results that are likely closest to our specification presented here. There is an initial gain of 1.26 percent and wage growth of 1.79 percent per year thereafter; the average gain for those either one or two years after naturalization is 3.9 percent. While this is somewhat lower than our 5.6 percent, given the inclusion of females in our sample and many other differences, it appears reasonably close.

Our results also suggest that the gains to naturalization appear to diminish for those who naturalized long ago, falling back down to only about 6 percent for those who naturalized 30 or more years ago. Such a result was not found in Bratsberg et al. (2002) – but again, their sample included only younger immigrants and that may also partly explain why their estimated trajectory was so sharp (and we suspect, unrealistically so). A decline in returns is, however, not entirely surprising: the citizenship effect could simply wear off over time, in accordance with the law of diminishing returns.[21] Such a result was not found, however, in Bratsberg et al. (2002) – but again, their sample included only younger immigrants and that may also partly explain why their estimated trajectory was so sharp (and we suspect, unrealistically so).[22]

There are more specific reasons why the citizenship effect might diminish over time. For example, consider our argument that citizenship "signals" to employers that the employee is definitely lawfully in the country and more likely to be committed to remain in country and on the job. Immigrants who have been in the U.S. for a very long time are likely to be more Americanized in both their work profile and human capital investments, weakening the power of citizenship as a signaling device to employers for traits they are looking for, such as command of English, good character, legal status, and a commitment to remain in the U.S. (recall that the regression controls for recency of arrival so we are focused on how citizenship differentiates two immigrants with the same tenure in the U.S.). Yet another (related) reason could be that immigrants who naturalized a long time ago tend to be less Latino and Asian; even though we are trying to control for labor market discrimination against these groups by adding control variables

Figure 3: Earned Income Returns to Immigrant Naturalization by Recency of Naturalization (upper bound estimates allowing for industry and occupational shifts)



[21] This is why age or work experience is typically entered as a quadratic function in wage or earnings regressions (i.e. years of work experience and its square are both included on the right-hand side rather than work experience alone) – to allow the model to account for diminishing returns to years of work experience.

[22] In fact, the models in Bratsberg et al. do not allow for diminishing returns to naturalization as experience since naturalization is never entered as a quadratic.

for ethnicity, it could be that the citizenship "signal" is less important for long-naturalized (and more likely to be white) immigrants.

We should also note something that is relevant to subsequent calculations: the estimates of the gains for each period since naturalization in Table 2 are based on our lower-bound estimates, from the model in which we are controlling for industry and occupation – which essentially means that one of the quite logical outcomes of naturalization, the enhanced ability to job-switch, is essentially ruled out as one of the ways in which to increase earnings. If we allow for such job shifting immediately and throughout the rest of one's work life, we get a higher initial return and the gains last longer before declining.[23] We suspect that the probable outcome in terms of both the size of the effect and the path it takes over time lies somewhere in the middle.

In either case, the upshot is that citizenship pays – and that the premium rises slowly over time. Any program seeking to help the economy by encouraging citizenship would need to differentiate between short-term effects (in the first few years) and long-term effects. It may also be, as suggested in Shierholz (2010), that there are even more long-run gains than we indicate if the naturalization of one household member confers benefits on another through access to a wider range of social contacts, more U.S.-specific human capital investments, and improved employment.

Potential Economic Impact of Immigrant Naturalization

So immigrants might benefit from naturalization – but what about the rest of us? In this section, we do a brief calculation of the economic benefits to the overall U.S. economy of large numbers of immigrants naturalizing. While we first note the income gains possible under a scenario of complete naturalization of all eligible immigrants in a single year simply to illustrate the process of our calculations, we then point out the returns if we assume a more realistic path of increasing naturalization such that we halve the pool of the eligible to naturalize under three different time frames.

Of course, the first issue is why we might expect an improvement in the overall economy anyway. Part of the reason is that the wage gain we estimate is not redistributive: the sort of wage regressions used above essentially estimate a worker's worth and how it changes with changes in control variables, and hence the estimated boost from citizenship is an addition to productivity and income.[24] These "supply side" gains come, as we noted, from more U.S.-specific human capital investments and a better match between employer and employee. However, the new earnings of immigrants may then trigger a demand-side impact as a portion is spent, "rippling" through the economy and generating additional income, spending and economic activity.

This logic implies that we need to do two basic estimates: first, calculate the aggregate increase in immigrant income due to naturalization, and second, the induced effects that may emerge as that income flows into new spending. We spend most of this section on the first and more direct effect; we close by discussing some ways to think about the induced effect.

[23] This is consistent with the differences in initial gains and subsequent wage growth in Table 5, column 4 and Table 7, column 2 in Bratsberg, Ragan, and Nasir (2002), in which the effects are smaller once some sectoral factors are introduced into the regression analysis.

[24] The underlying assumption is that our regression estimates reflect a labor market in equilibrium, and thus the increase in earnings of newly naturalized immigrant workers results from meeting the demand for labor at the going wage. Note that this implies an increase in gross domestic product (GDP) of at least the amount of the increase in earnings for newly naturalized immigrants, as for each additional dollar paid out in wages there is some amount of profit (on average). Thus, our estimates are conservative as there are likely to be attendant increases in firm profits that are not taken into consideration here.

Table 6: Impact on Annual Immigrant Citizen Earnings from Full-Naturalization Scenario

Eligible-to-Naturalize Workers		
Total Eligible to Naturalize	8,530,000	
x Share of Non-Citizens in Regression Sample	46.23%	
= Eligible to Naturalize Workers	**3,943,820**	
Increase in Earned Income from Naturalization (per worker)	*From Naturalization Alone*	*Including Industry/ Occupation Effect*
Average Earnings for Non-Citizens in Regression Sample	$28,797	$28,797
x Returns to Naturalization	7.93%	11.22%
= Increase in Earned Income from Naturalization (per worker)	**$2,283.19**	**$3,232.39**
Increase in Immigrant Earnings		
Eligible-to-Naturalize Workers	3,943,820	3,943,820
x Increase in Earned Income from Naturalization (per worker)	$2,283.19	$3,232.39
= Aggregate increase in earned income	**$9,004,479,623**	**$12,747,970,768**

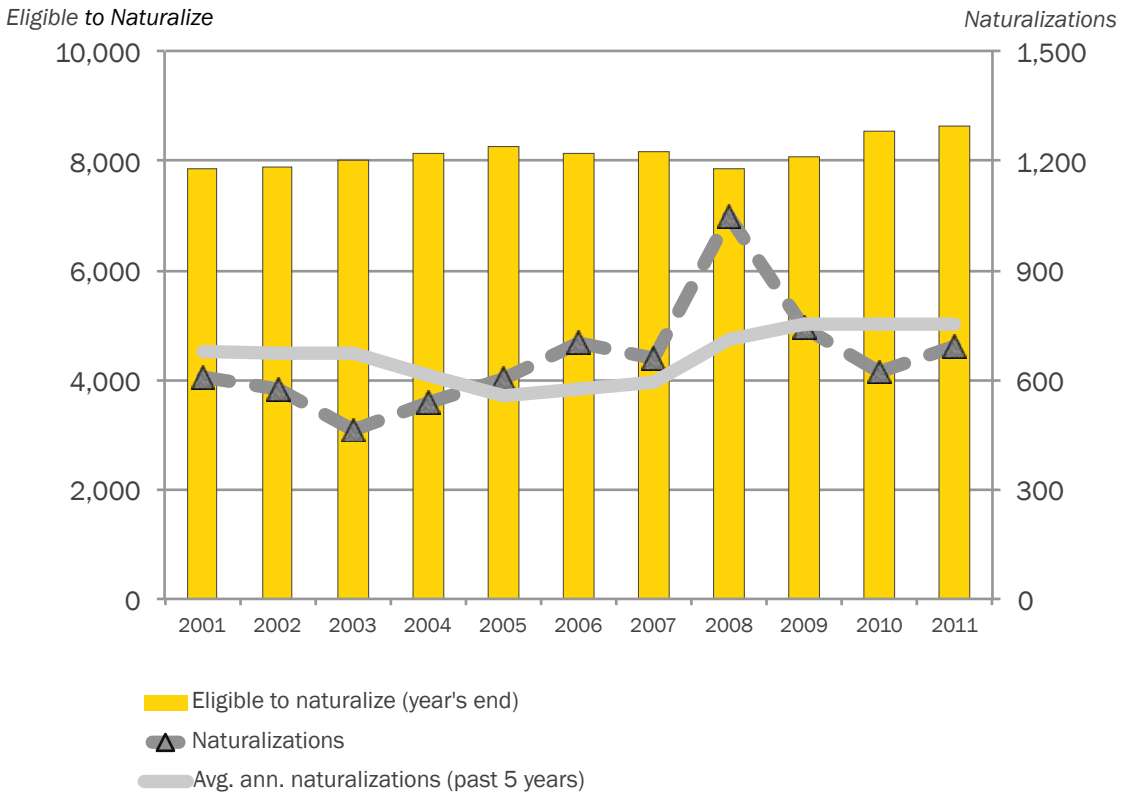
The basic process to estimate the direct increase in immigrant aggregate income involves multiplying the average annual earnings for non-citizen immigrants by the estimated returns to naturalization from our regression model as presented in Figure 1.[25] To play it on the conservative side, we focus first on the estimate of the returns to naturalization obtained in the fully specified model with industry and occupation controls; however, parallel to our path estimates above, we note that one important impact of naturalization could be increased mobility and so we also present a set of estimates that includes shifts in industry/occupation on the part of newly naturalized immigrants.

In both cases, the average dollar gain per newly naturalized immigrant per year is then multiplied by the number of persons who are both eligible to naturalize (according the most recent estimates from the OIS) *and* likely to see gains in earnings from naturalization. That means we need to know how many of those eligible to naturalize are actually working, a data point not readily available in data from the OIS. On the other hand, the share of all non-citizen immigrants in the 2010 ACS that met the cut to be included in our primary regression sample was 46.2 percent. We believe this is a lower-bound estimate of the share of the eligible-to-naturalize who are working since naturalization might also step up attachment to the labor force; we note, for example, that nearly 62 percent of all immigrant citizens in the 2010 ACS made the cut into our regression sample, suggesting that non-citizen immigrants who are currently not working might move into the labor force.

If we now multiply the estimated gain in earnings for the average newly naturalized immigrant by the total number of eligible-to-naturalize workers, we get an estimate of the maximum possible direct increase in annual earned income. That set of basic calculations is shown in Table 6; as can be seen, using the approximate 8 percent increase in earnings from naturalization alone, we find an aggregate increase in earnings of 9 billion dollars per year, an effect that rises to nearly 13 billion dollars if we allow for the possibility of gains in earnings from changes in industry and/ or occupation. Note further that that the actual impact on the economy would be larger because we have not yet included any of the induced effects from the new spending such earnings might spur.

[25] Note that using average earnings for all non-citizens included in our regression sample as the basis for calculating the dollar increase in earnings via naturalization will tend to understate the result. This is because, as noted above, the non-citizens in our regression sample include the unauthorized as well as those who are authorized, but not eligible to naturalize – both of whom tend to have lower earnings than immigrants who are eligible to naturalize.

Figure 4: The Eligible-to-Naturalize Population and Naturalization, 2001-2011 (Thousands)



Of course, not everyone who is eligible will naturalize – there are reasons, such as attachment to homeland, which may mean that some immigrants never opt for U.S. citizenship. Moreover, even if every eligible individual decided to naturalize, it is unlikely they would all do so in a single year (plus, imagine the workload in the offices of Citizenship and Immigration Services!). Thus, below, we create a partial and phased naturalization scenario and calculate those impacts.

To do this, we begin by considering estimates of the eligible-to-naturalize as reported in a series of reports by Nancy Rytina of the OIS at the end of each year, along with the number of naturalizations reported by the OIS during each year, as well as the average over the previous five years (to give a sense of the longer-run trend).[26] As can be seen in Figure 4, the number of naturalizations fluctuates from year to year, with a peak in 2008 of about 1,046,000 naturalizations. The five-year average is steadier, of course, hovering around the range of 600,000 and 700,000 per year. Thus, despite the steady flow of naturalizations, the concurrent flow of new LPRs has meant that there has been little change in the pool of the eligible-to-naturalize, which has remained remarkably stable, showing only a modest increase over the past decade.

[26] All data is from the Office of Immigration Statistics (OIS). Naturalizations per year are from the 2011 Yearbook of Immigration Statistics. The number of LPRs eligible to naturalize are from a series of reports by Nancy Rytina which began in 2004 (providing estimates as of January 1st, 2002), with most recent estimates from a 2012 report (estimates as of January 1st, 2011). No such report was released with estimates for January 1st, 2005, so this data point was interpolated. The estimate for January 1st, 2012 has not yet been released, so this data point (for year's end 2011) was estimated as the stock of the eligible to naturalize at year's end 2006, plus the number of LPRs attaining status from 2002 through 2006, less the number of naturalizations from 2007 through 2011, adjusted downward slightly (by 9 percent) to account for mortality and emigration. Applying this approach to earlier years yielded estimates that were very close to those reported by the OIS.

To look at the possible economic gains, we set as a target not naturalizing everyone possible but simply halving the stock of eligible-to-naturalize LPRs by stepping up the rate of naturalizations per year. To reach this goal, a program would have to yield about 4.3 million naturalizations in addition to those that would have otherwise occurred (essentially working down the stock while maintaining the current flow).[27] We assume that only a portion of those will be working adults – we use the same low end guess as in Table 6 – since it is unlikely that the government would target only that population (although private business-initiated efforts, discussed below, might exhibit such targeting).

We estimate three scenarios – one in which we achieve the overall naturalization goal in five years, one in which we achieve the goal in seven years, and one in which we achieve the goal in 10 years. For each scenario, we calculate the cumulative impact on immigrant earnings over the 10 years after the program is initiated. To facilitate the calculation, we make a simplifying assumption that the increase in naturalizations required to reach the goal is spread evenly over the program's time frame; for example, in the 10-year scenario, one tenth of the goal is achieved in year one and so it is not until year 10 that we have worked down the stock by half. This implies that gains in each year increase by the amount of new naturalizations in excess of historic levels (i.e., year two has two tenths of those we hope to naturalize making higher wages). We also assume that the returns to earnings from naturalization change over time according to the estimates reported in Figures 2 and 3 (so that the first cohort in a 10-year scenario sees its gains rise after several years while the last cohort in has only one year since naturalization and hence only enjoys the initial 5.6 percent gain in the case where no one can switch jobs and 7.2 percent gain in the case where we have relaxed the industry and occupation controls).[28]

The results of this analysis are reported in Table 7. The most modest of the three programs meets the naturalization goal in 10 years; it requires just over 1 million naturalizations per year (only 4 percent higher than the 2008 peak) and would result in an increase in cumulative immigrant earnings over 10 years of between 21 billion and 29 billion dollars. The most ambitious program assumes that the goal is reached within five years. This would require about 1.5 million naturalizations per year (about 44 percent higher than the 2008 peak), and would result in additional immigrant earnings of between 32 billion and 45 billion dollars over 10 years, with the lower-bound estimate assuming no job shifts and the upper-bound assuming a quickly realized and full ability to job switch. As suggested before, the probable effect lies somewhere in the middle.

Of course, the cycle does not necessarily end there: increased income is spent and produces additional gains in GDP. To consider this, we turned to both a recent set of macroeconomic multipliers calculated by Mark Zandi, Chief Economist of Moody's Analytics (Zandi 2011) and a related analysis by Robert Pollin and Heidi Garrett-Peltier (2011). Zandi is focused on demand-side fiscal policies and so provides a range of estimates of the one-year change in GDP

Table 7: Impact on Immigrant Citizen Earnings from Partial-Naturalization Scenarios

Program to halve the eligible to naturalize population in…	Number of naturalizations per year	Increase in naturalizations per year over peak year (2008)	Cumulative increase in immigrant earnings over 10 years (lower bound)	Cumulative increase in immigrant earnings over 10 years (upper bound)
5 years	1,512,109	44%	$31,903,221,816	$44,677,213,157
7 years	1,268,395	21%	$27,393,402,749	$38,261,962,178
10 years	1,085,609	4%	$21,166,781,923	$29,400,820,587

[27] This statement assumes a number of naturalizations per year equal to the 2001 through 2011 average of about 650,000, and that this rate of naturalization would leave the pool of about 8.5 million eligible to naturalize unchanged as has been the general case over the past decade.

[28] All other aspects of our estimation procedure are the same as those described above to estimate the impact of a full-naturalization scenario on annual immigrant earnings, as reported in Table 6, including the use annual average earnings for non-citizen immigrants in our regression sample ($28,797) as the basis for the calculations (with no adjustment for earnings growth over time that is unrelated to the impact of naturalization), and the assumption that only 46.2 percent of the newly naturalized are workers and will thereby see an increase in earnings.

(in dollar terms) expected to result from a one-dollar increase in government spending (or reduction in federal tax revenue). The size of the multiplier for different policy proposals reflects the differences in the extent to which the recipients of the government spending will turn around and spend that money immediately, sending it cycling through the economy and generating additional income and spending.[29] It is no surprise that he finds that the multiplier for an increase in food stamps (1.71) is higher than that for an across-the-board tax cut (1.04) – there is not much one can do with food stamps *but* spend them while money saved on taxes might go directly into savings or debt service. Similarly, Pollin and Garrett-Peltier find a comparatively higher employment multiplier for personal tax cuts versus increased military spending, with their estimate of induced effects a bit higher than that implied by Zandi's figures.

For our estimates, the most relevant multiplier may be the one Zandi provides for the Making Work Pay Credit, partly because that policy was aimed at a population whose average annual earnings mirror those of the non-naturalized immigrant workforce. That multiplier is 1.17, meaning that a $1 increase in income for the newly naturalized will result in a $1.17 increase in GDP.[30] The Pollin and Garrett-Peltier estimates of induced effects suggest a multiplier for induced effects that would be higher. But using the more conservative Zandi approach suggests an overall gain that would fall between $37 billion and $52 billion over the 10 year period for the most aggressive naturalization program. This number is likely a severe underestimate of the overall impact because the initial boost to GDP has elements of a supply shock in which productivity is permanently increased due to more U.S.-specific human capital and a better match between employers and employees. All this suggests that the figures cited above for the increase in earnings is a minimum gain to be had by pursuing a relatively modest program of increased naturalizations.

Implications for Policy and Practice

Obtaining citizenship involves jumping a number of hurdles, most of which most Americans think are quite reasonable. For example, to be naturalized, LPRs must demonstrate English language proficiency, knowledge of US history and government, and pass a criminal background check. They must also pay for the application and biometrics tests (USCIS 2012).

The policy question is when do hurdles become obstacles, particularly given the gains to be had for both immigrants and the nation. One issue is the size of the application fee; with the biometrics fee, the cost totals $680. In a survey of 526 LPRs in Texas, Freeman, Plascencia, and Gonzalez Baker (2002) found that among eligible LPRs who had not filed a naturalization application, 20 percent cited cost as a prohibitive factor, 24 percent a lack of time, and about 16 percent (each) the lack of English proficiency or knowledge about navigating the naturalization system.

Does cost really matter? Some evidence of price sensitivity was shown when USCIS increased the cost to naturalize from $400 to $595 (plus the costs of biometrics) in the middle of 2007: the result was a surge of applications just prior to the fee increase. As a result, there were nearly 1.4 million naturalization applications filed in 2007 but just over 500,000 in 2008 (Sumption and Flamm 2012 citing Department of Homeland Security 2011). Afterwards, the number of applications has slowly increased to more typical levels, suggesting that adjustments do take place. But it is also important to realize that the fee itself is a lower-bound estimate of costs: successful applicants may also need to put time and money into English and civics courses, as well as obtaining any needed legal or other assistance in preparing the paperwork (Leighton et al. 2008). While these costs are not comfortable for, say, a middle-income

[29] The magnitude of such multipliers also varies with economic conditions: when the economy is operating at near full capacity, with low unemployment and high demand, they tend to be lower; if the reverse is true (such as the current state of the economy), they tend to be higher.

[30] The average annual earnings of non-citizen immigrants in our regression sample ($28,797) is close to an approximation of the average income for all workers that qualify for the credit ($26,290). The latter figure was calculated by taking the average of annual earnings for all workers in our regression sample, expanded to include U.S. natives, that had earnings below $75,000, which is the upper limit on Adjusted Gross Income to be eligible for the this particular credit.

Micro-financing the Midwest

The State of Illinois partnered with the Illinois Coalition for Immigrant and Refugee Rights to launch the New Americans Initiative, a statewide naturalization assistance program. A cornerstone of this initiative is the microloan programs in which local organizations throughout the state partner with commercial and community banks as well as credit unions to help ease the costs of naturalization fees. These loans range from a minimum of $680 to a maximum of about $1,500 and usually are repaid in about 6-12 months with minimal interest.

Source: Cost and Financing, The New Americans Initiative, Illinois Coalition for Immigrant and Refugee Rights. http://icirr.org/node/1181

earner, they can be unreachable for many low-income immigrants – and, in fact, approximately 52 percent of LPRs eligible to naturalize are low-income (Passel 2007).

Given the economic gains that can be realized, we think there is an argument for decreasing the cost of naturalization, including facilitating the application process to reduce the need for assistance. But it can also lead one to wonder why more immigrants don't just make the civic and economic leap. Part of the issue is liquidity: for low-income LPRs, saving up is a challenge and other pressing family needs may take priority. A 2010 survey of Latino immigrants who had attended one of NALEO's Ya Es Hora! citizenship workshops reported that one quarter of attendees had borrowed money to cover the application fee while more than two fifths of those who had postponed their application reported cost as the reason for doing so (Ramirez and Medina 2010). Of those who postponed because costs were too high, 93 percent claimed they would be more likely to file an application if loans were available to assist with the application cost.

Thankfully, solutions to this liquidity issue are being forged. Part of the Citizenship Maryland effort, CASA de Maryland and Citi Community Development (part of Citigroup) have piloted a microloan program to help with naturalization fees that is so successful that places like New York and San Francisco are looking to it and the National Council of La Raza is also considering how to support its replication. CASA began looking for solutions when – much like NALEO – immigrants they were working with were deterred from naturalization because they could not afford the fees, on top of other costs. With staff and funding from Citi, CASA worked with the Latino Economic Development Corporation and the Ethiopian Community Development Council Enterprise Development Group to grant loans. These loans are for the amount of the fee (plus biometrics); applicants pay a $25 application fee – which is deposited back into the owners' new savings account upon repayment – and repay the loan at an interest rate of 8.5 to 9 percent. The idea is to enable citizenship as well as establish credit (through loan repayment) and get new Americans headed towards a surer financial future. To date, 100% of loans have been repaid and Citi Community Development recently won an E Pluribus Unum prize from the Migration Policy Institute (MPI) for its leadership in this effort (CASA de Maryland 2011; Citigroup, Inc. 2012).

Beyond the finances, Citizenship Maryland also offers help in navigating the naturalization process. Such assistance can also rack up costs – assistance fees, legal counsel fees, translation services – but the complexity of the process can be a barrier unto itself. In a report written by the Washington College of Law, CASA, and Tenants and Workers United, the authors noted that the complexity, lack of one-on-one assistance, and fear of US CIS scrutiny in the post-9/11 era deters many (Leighton et al. 2008). Part of this gap can be filled by non-profits, faith-based groups and community organizations that offer application assistance and some basic guidance at a very minimal cost.[31] But part of this gap also needs to be filled by the U.S. government – by simplifying the process and promoting citizenship.

[31] Interviews with CASA de Maryland and Catholic Legal Immigration Network, Inc. (CLINIC) in September 2012, by Anthony Perez with the USC Center for the Study of Immigrant Integration.

Another key way to propel naturalization is addressing the English language gap.[32] An MPI report estimated that 55 percent of eligible LPRs were Limited English Proficient in 2005 (Sumption and Flamm 2012) and while Freeman et al. (2002) cite cost as an issue, as indicated above, they also suggest that English proficiency is a key obstacle to naturalization. In an analysis of the heavily immigrant state of California, MPI documented the ongoing undersupply of English language courses for those in need of improving their proficiency (McHugh, Fix, and Gelatt 2007).[33] The major issue here is a lack of funding as well as a lack of courses that are more easily accessible at a community level. While some federal monies are available and most states match those dollars at varying amounts, MPI suggests that there is a need to cultivate more resources.

Leadership matters as well. For example, in June of 2012, the U.S. Conference of Mayors adopted a resolution urging the Federal government to launch a "New Americans Initiative" using support from multiple agencies, such as the USCIS and the Department of Education, to actively promote naturalization (U.S. Conference of Mayors 2012). It cited as key strategies: reducing fees (suggesting that naturalization costs also be funded by government subsidies, not just fees), increasing funding for institutions helping with the citizenship process, and fully funding immigrant integration grants offered by the USCIS. Finally, it encourages cities across the nation to adopt such "New Americans Initiatives" as well. Leadership initiatives like these signal a welcoming attitude, elevate the importance of immigrants, and promote citizenship, and in doing so, dispel fears.

One important partner in all these efforts, the business sector, will benefit from the improved productivity, earnings and spending that seems to be associated with naturalization. There is already a range of efforts to promote English learning on the job – including the Sed de Saber program promoted by Marriott and English Under the Arches run by McDonald's – and naturalization would seem to be a reasonable next step. For several years, Trifinity Manufacturing in Baltimore offered citizenship preparation classes and honored new citizen employees with a party.[34] In Los Angeles, the Chamber of Commerce has begun to experiment with both promoting the message that naturalization is beneficial to business and persuading businesses to make information and materials available to employees. As described above, banks could help by developing more micro-loan products that could help immigrants bridge their way to a higher earnings future. And the National Immigration Forum has developed The Bethlehem Project, an effort to persuade businesses nationwide to establish on-site ELL programs and offer assistance in the naturalization process.

In short, this is a set of efforts in which all sectors have a role. Immigrant-serving organizations certainly should be part of the mix: they can be trusted allies in persuading immigrants that their interests and those of their families will be better served by taking the naturalization plunge. But naturalization is too important and too economically beneficial to the nation to confine citizenship promotion efforts to just those groups – or even just the federal government whose titular responsibility this is. Businesses, labor unions, mayors, non-profit leaders, ethnic and mainstream media, and many, many others can spread the message and create the opportunities for Lawful Permanent Residents to make that all-important passage to a more tangible sort of permanence: the status of being a U.S. citizen.

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[32] In some cases, immigrants first need to become literate in their own language even before beginning a new language. Centro Latino for Literacy in Los Angeles offers such services.

[33] The California report is the first of its kind to do this analysis by county. Commissioned by the Zellerbach Family Foundation and Grantmakers Concerned with Immigrants and Refugees, the 2008 report entitled, "An Assessment of the English Language Instruction Need and Supply in California," quantified the gap between English language supply and demand.

[34] These examples draw from *Creating a WorkPlace ELL Program*, available at http://cliniclegal.org/category/resources-type/toolkits. Trifinity has since relocated its operations to Waukegan, Illinois.

Nurturing Naturalization

We began this brief – which at this length is not really so brief – by noting that there are many reasons to encourage immigrants to obtain citizenship. The most profound, of course, is simply our commitment to democracy: those who have chosen to make their lives in this country should have a role in helping to determine the future for themselves and their children.

Yet another way they can influence that future – and the American future more broadly – is to enhance their contributions to economic as well as civic life. Naturalization offers a course for immigrants to do that, partly by signaling to employers the commitment to stay, partly by incentivizing their own investments in U.S.-specific human capital, and partly by facilitating a better match between companies and job seekers.

The impact on earnings can be significant: we estimate an 8 to 11 percent gain in individual earnings, phased in over time. And the positive results for the U.S. economy could be helpful: using the mid-point between lower–and upper –bound estimates of gains and setting a goal of shrinking the number of the eligible non-naturalized by half over five years, we estimate an earnings boost of nearly $40 billion over the next decade, with secondary impacts likely to boost GDP even more.

Why does this “citizen gain” go unrealized? A key issue is liquidity on the part of immigrants themselves: even if they know that naturalizing will improve their economic prospects, pulling together the cash to pay all the direct and indirect costs involved in the process can still be a heavy lift. Fortunately, both business leaders and groups working for immigrant integration are beginning to implement new programs that can point the way to overcoming these financial and other obstacles and better promote naturalization. And the government can help by streamlining the process and considering whether reductions in application fees and other costs might lower burdens in meaningful ways.

Those who have witnessed a naturalization ceremony often comment that there are few things more inspiring than watching a group of new Americans swear their allegiance to this nation and its principles. To know that it also can pay off economically is a bonus – and it is one that we should not leave lying on the floor. Encouraging naturalization is not just the right thing to do; it is an economic imperative in a nation still working to emerge from the shadow of recession. With the children of immigrants now totaling nearly one quarter of our overall youth population, it’s an investment in their future and the future of America.

Technical Appendix

This appendix offers the tables with our full regression results. As noted in the text, all signs are as expected and virtually all variables are statistically significant. Note further that the explanatory power of the regression, as indicated by the adjusted R-squared, is generally consistent with labor market research.

Table A1: Estimated Returns to Naturalization, Full Model

	Regression Results			
Variables	No Controls	Add human capital, personal & household controls	Add migration, geographic & labor market controls	Add industry & occupation controls
Citizen	0.412***	0.186***	0.112***	0.079***
High school diploma or equivalent		0.171***	0.124***	0.110***
Some college		0.314***	0.231***	0.132***
Bachelor's degree		0.704***	0.597***	0.352***
Master's degree		1.034***	0.899***	0.576***
Professional degree		1.183***	1.051***	0.644***
PhD		1.257***	1.126***	0.843***
Work experience		0.048***	0.047***	0.046***
Work experience squared		-0.001***	-0.001***	-0.001***
Female		-0.378***	-0.375***	-0.323***
Black		-0.031***	-0.067***	-0.069***
Latino		-0.134***	-0.051***	-0.031***
Asian/Pacific Islander		0.001	-0.014	-0.045***
Other, non-white		-0.035**	-0.067***	-0.058***
Married		0.038***	0.070***	0.051***
U.S.-born spouse		0.116***	0.052***	0.041***
Naturalized-immigrant spouse		0.030***	0.014**	0.002
Children		0.068***	0.072***	0.059***
Speak English "very well" or only			0.171***	0.105***
Area unemployment rate			-0.022***	-0.018***
Constant	9.878***	9.209***	9.621***	9.604***
Country of origin dummies?	No	No	Yes	Yes
Recency of arrival dummies?	No	No	Yes	Yes
State dummies?	No	No	Yes	Yes
Industry and occupation dummies?	No	No	No	Yes
Observations	183,474	183,474	183,474	183,474
Adjusted R-squared	0.043	0.250	0.269	0.336

Source: Center for the Study of Immigrant Integration (CSII) analysis of IPUMS 2010 American Community Survey (ACS).

Notes: (i) Dependent variable is the natural log of earned income during year before the survey was administered. (ii) "***" = significance at the .01 level; "**" = significance at the .05 level; "*" = significance at the .10 level. (iii) Sample includes immigrants who: arrived in the U.S. in 2004 or earlier (so as to restrict to those likely to be eligible to naturalize); were age 18 or older at the time of the survey; worked during the year prior to the survey and had earned income between $400 and $292,000; were not living in group quarters at the time of the survey. (iv) All explanatory variables are dummy variables, with the exception of work experience and its square (figured in years) and the area unemployment rate (figured such that 10 = 10 percent unemployment). (v) For the race/ethnicity dummy variables, Latino includes all persons identifying as being of Hispanic or Latino ethnicity, leaving the other variables "non-Hispanic."

Table A2: Estimated Returns to Naturalization, Full Model, Males Only

Regression Results				
Variables	No Controls	Add human capital, personal & household controls	Add migration, geographic & labor market controls	Add industry & occupation controls
Citizen	0.430***	0.149***	0.091***	0.066***
High school diploma or equivalent		0.153***	0.116***	0.103***
Some college		0.262***	0.196***	0.121***
Bachelor's degree		0.659***	0.566***	0.334***
Master's degree		1.011***	0.873***	0.541***
Professional degree		1.082***	0.963***	0.602***
PhD		1.193***	1.072***	0.796***
Work experience		0.047***	0.047***	0.045***
Work experience squared		-0.001***	-0.001***	-0.001***
Black		-0.176***	-0.201***	-0.167***
Latino		-0.162***	-0.085***	-0.061***
Asian/Pacific Islander		-0.076***	-0.085***	-0.104***
Other, non-white		-0.115***	-0.143***	-0.126***
Married		0.099***	0.124***	0.103***
U.S.-born spouse		0.156***	0.095***	0.079***
Naturalized-immigrant spouse		0.059***	0.044***	0.031***
Children		0.109***	0.111***	0.097***
Speak English "very well" or only			0.158***	0.100***
Area unemployment rate			-0.024***	-0.018***
Constant	10.020***	9.246***	9.652***	9.527***
Country of origin dummies?	No	No	Yes	Yes
Recency of arrival dummies?	No	No	Yes	Yes
State dummies?	No	No	Yes	Yes
Industry and occupation dummies?	No	No	No	Yes
Observations	100,059	100,059	100,059	100,059
Adjusted R-squared	0.051	0.257	0.276	0.333

Source: Center for the Study of Immigrant Integration (CSII) analysis of IPUMS 2010 American Community Survey (ACS).

Notes: (i) Dependent variable is the natural log of earned income during year before the survey was administered. (ii) "***" = significance at the .01 level; "**" = significance at the .05 level; "*" = significance at the .10 level. (iii) Sample includes male immigrants who: arrived in the U.S. in 2004 or earlier (so as to restrict to those likely to be eligible to naturalize); were age 18 or older at the time of the survey; worked during the year prior to the survey and had earned income between $400 and $292,000; were not living in group quarters at the time of the survey. (iv) All explanatory variables are dummy variables, with the exception of work experience and its square (figured in years) and the area unemployment rate (figured such that 10 = 10 percent unemployment). (v) For the race/ethnicity dummy variables, Latino includes all persons identifying as being of Hispanic or Latino ethnicity, leaving the other variables "non-Hispanic."

Table A3: Estimated Returns to Naturalization, Full Model, Females Only

Regression Results				
Variables	No Controls	Add human capital, personal & household controls	Add migration, geographic & labor market controls	Add industry & occupation controls
Citizen	0.474***	0.223***	0.132***	0.089***
High school diploma or equivalent		0.209***	0.147***	0.121***
Some college		0.388***	0.283***	0.148***
Bachelor's degree		0.768***	0.639***	0.369***
Master's degree		1.078***	0.930***	0.604***
Professional degree		1.316***	1.165***	0.721***
PhD		1.367***	1.220***	0.903***
Work experience		0.050***	0.048***	0.047***
Work experience squared		-0.001***	-0.001***	-0.001***
Black		0.116***	0.082***	0.046***
Latino		-0.104***	-0.004	0.011
Asian/Pacific Islander		0.090***	0.072***	0.023*
Other, non-white		0.057**	0.025	0.022
Married		-0.039***	0.002	-0.013
U.S.-born spouse		0.076***	0.006	-0.006
Naturalized-immigrant spouse		0.025**	0.013	-0.005
Children		-0.006	0.002	-0.007
Speak English "very well" or only			0.183***	0.102***
Area unemployment rate			-0.020***	-0.016***
Constant	9.651***	8.785***	9.210***	9.313***
Country of origin dummies?	No	No	Yes	Yes
Recency of arrival dummies?	No	No	Yes	Yes
State dummies?	No	No	Yes	Yes
Industry and occupation dummies?	No	No	No	Yes
Observations	83,415	83,415	83,415	83,415
Adjusted R-squared	0.052	0.220	0.242	0.325

Source: Center for the Study of Immigrant Integration (CSII) analysis of IPUMS 2010 American Community Survey (ACS).

Notes: (i) Dependent variable is the natural log of earned income during year before the survey was administered. (ii) "***" = significance at the .01 level; "**" = significance at the .05 level; "*" = significance at the .10 level. (iii) Sample includes female immigrants who: arrived in the U.S. in 2004 or earlier (so as to restrict to those likely to be eligible to naturalize); were age 18 or older at the time of the survey; worked during the year prior to the survey and had earned income between $400 and $292,000; were not living in group quarters at the time of the survey. (iv) All explanatory variables are dummy variables, with the exception of work experience and its square (figured in years) and the area unemployment rate (figured such that 10 = 10 percent unemployment). (v) For the race/ethnicity dummy variables, Latino includes all persons identifying as being of Hispanic or Latino ethnicity, leaving the other variables "non-Hispanic."

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